

RIVERS AND FLOODS

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There were only minor floods in the rivers of the United States where flood service is maintained. They are listed in the table below.

Heavy rains in southern Mississippi, Louisiana, and in eastern Texas, occurred on July 15-16 and still heavier rains fell on July 23-26. They caused much flooding and damage in the creeks and small streams where it is not practicable to issue flood warnings. The damage was greatest around Shreveport, La., where 19.08 inches of rain fell in 72 hours.

Very heavy rains over the Bear Creek Valley (a small tributary to the South Platte River) caused considerable damage near Morrison, Colo., on July 7. The official in charge at Denver, Colo., comments as follows on this flood:

Floods of this kind are of common occurrence in the canyons along the eastern slope of the Rockies from Montana to New Mexico, and the Bear Creek Canyon region appears to be particularly susceptible to the excessive downpours that result in sudden violent rises in the mountain streams whenever the conditions are favorable for thunderstorms in this region. Thunderstorms in Denver and its vicinity had been indicated for several days prior to the time of occurrence of the flood and had been forecast, morning and night, beginning with the evening of the 3d. The distance from Denver to Morrison is approximately 15 miles.

On July 21 the Columbia River passed below the flood stage. The Columbia reached its crest in June and was 0.1 foot higher at Vancouver than it was in 1928, the year of the previous highest gage reading. This flood was quite similar to the 1928 rise. (See Mo. Wea. Rev., vol. 56, 1928, p. 240.) The following report of the official in charge of the Weather Bureau office at Portland, Oreg., is of much interest in this connection:

Over the drainage basin of the Columbia River the winter of 1932-33 was unusually cold. Precipitation was not greatly in excess of normal, as a whole, but from December to March, inclusive, most of that which occurred in the mountains was in the form of snow. In the annual snow bulletin, based on conditions at the close of March, the statement was made that the 1933 rise of the Columbia River, with normal conditions prevailing at the time of most rapid melting, would be considerably greater than usual, and that, if unusually hot weather should occur late in May or early in June, a stage of 23 or 24 feet might be reached by backwater in the Portland harbor.

April was dry but cold, and there was relatively little melting; moreover some additions were made to the snow supply at high levels.

May was unusually cool, and not until the closing days was the temperature high enough to cause rapid melting of snow at the higher levels. In some parts of the drainage basin there was an excess of precipitation, but the amounts over the basin as a whole were not excessive. However, because of the persistence of low temperature, there were considerable deposits of new snow in some of the higher areas.

The warm spell which began late in May caused a material rise in the Columbia, bringing the river to the flood stage of 15 feet at Vancouver, Wash., on the 29th and raising the backwater at Portland to the flood stage of 18 feet on June 3.

Following this warm period record-breaking rains fell in the Willamette Valley, causing higher stages in the Willamette River and its tributaries than had ever been recorded in June. Shortly after this there were very heavy rains in northern Idaho, causing a rapid rise in the Clearwater. Almost immediately following these rains a prolonged hot spell set in, bringing temperatures above 100 over large areas.

This combination resulted in the highest summer stage at Portland since 1894, and the highest at any time since 1923. However, crest stages at many points on the Columbia were somewhat below those of 1928.

Forecasting was made quite difficult by the occurrence of heavy rains at a time when the water was already unusually high from melting snow, and by the breaking and submergence of many dikes, which enabled the water to spread over an unusually wide area. However, relatively little movable property was lost, and there was little spent for needless protection.

So much had been said about unusually deep snow in the mountains the public was generally anticipating a higher freshet than actually occurred. Much of the value of the service rendered by the Weather Bureau lay in preventing unnecessary alarm.

Except at Kelso, Wash., where the breaking of a dike on Coweman River resulted in the flooding of the southern portion of the city, damage was mostly confined to the flooding of farm and pasture lands.

The situation in Portland was greatly simplified by the protection afforded by the harbor wall and pumping system. Basements in the principal west-side business district, which heretofore had been generally flooded in high-water periods, were kept dry in this freshet.

Table of flood stages in July 1933

[All dates in July unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE					
	<i>Feet</i>			<i>Feet</i>	
Santee: Rimini, S.C.....	12	{ 1 13	{ 2 16	12.4 12.9	2 15
Savannah: Ellenton, S.C.....	14	{ 22 23	{ 24 24	13.5 14.5	24 23
EAST GULF OF MEXICO DRAINAGE					
Pearl: Jackson, Miss.....	18	{ 14 17	{ 15 18	18.2 18.9	14 18
MISSISSIPPI SYSTEM					
<i>Ohio Basin</i>					
Elk: Fayetteville, Tenn.....	14	14	15	14.2	14
<i>Red Basin</i>					
Sulphur: Ringo Crossing, Tex.....	20	{ 20 24	{ 20 24	21.6 21.0	20 24
WEST GULF OF MEXICO DRAINAGE					
Sabine:					
Logansport, La.....	25	24	(1)	34.6	25
Bon Wier, Tex.....	21	27	(1)	22.6	31
Trinity: Dallas, Tex.....	28	31	(1)	30.7	31
PACIFIC SLOPE DRAINAGE					
<i>Columbia Basin</i>					
Columbia: Vancouver, Wash.....	15	May 28	21	25.5	June 19

¹ Continued into August.